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# Optimal Capital Structure Analysis of PT Kencana Energi Lestari Tbk

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## Abstract

In 2020, fossil fuels accounted for around 80% of the world's energy supply, but the 2022 global energy crisis highlighted their vulnerability and lack of sustainability, prompting a global shift towards renewable energy sources. Indonesia, recognizing its potential in renewable energy, has taken proactive steps to accelerate its transition, such as issuing Peraturan Presiden Nomor 112 Tahun 2022 to facilitate renewable energy development. PT Kencana Energi Lestari Tbk responded positively to the regulation and allocated USD 30 million in 2023 to implement renewable energy strategies. They are also pursuing a USD 100 million renewable energy project in the Philippines. PT Kencana Energi Lestari Tbk plans to use USD 9 million from internal cash reserves and obtain an additional USD 121 million from external financing sources to fund its initiatives. However, their current capital structure has a debt-to-equity ratio of 76.84%, which deviates significantly from the industry average of 35.92%, suggesting that it may not be optimal. This study employs the Weighted Average Cost of Capital (WACC) method to identify the optimal capital structure to maximize the company's value. The suggested capital structure consists of 34% debt and 66% equity, resulting in an optimal cost of capital of 12.2868%. To implement their renewable energy plan, PT Kencana Energi Lestari Tbk must secure a total funding of USD 23,947,572.54 through debt financing and USD 97,052,427.46 through equity financing.

**Keywords:** financing plan; optimal capital structure; renewable energy.

## A. INTRODUCTION

Fossil fuels have historically held a prominent position as the primary energy source on a global scale, contributing around 80% of the overall global energy supply in the year 2020. The worldwide energy crisis in 2022 highlighted the inherent vulnerability and lack of long-term viability of the existing energy system, leading multiple countries to speed up their adoption of renewable and sustainable energy sources. The increasing significance and substantial expansion of the renewable energy sector can be attributed to the aim of reducing dependence on fossil fuels. Indonesia, a country with considerable potential for advancing renewable energy, proactively addresses this phenomenon by shifting towards renewable sources and striving for a more environmentally sustainable energy composition. The issuance of Regulation Number 112 of 2022 by the President of Indonesia is meant to speed up the advancement of renewable energy sources and attain the predetermined objectives for reducing greenhouse gas emissions, as stipulated in the National Energy Policy. PT Kencana Energi Lestari Tbk (KEEN) has responded favorably to the rule above, perceiving it as a beneficial occasion for expanding its efforts regarding renewable energy.

According to a report by Bisnis.com in 2022, the funding for the forthcoming renewable energy development plan in 2023, totaling USD 30 million, will be sourced from internal cash reserves (30%) and external financing (70%). The funds that have been collected will be allocated towards the financing of three projects: a micro-hydro power plant with a capacity of 10 MW, the acquisition project for a biomass plant with a capacity of 5 MW, and the construction of a solar photovoltaic project with a capacity of 1.3 MW. Furthermore, the company still needs to determine its financing plan to actualize the renewable energy project in the Philippines valued at USD 100 million. The firm plans to dedicate USD 9 million from its internal cash reserves and secure the remaining USD 121 million from external financing sources, which might be in debt, equity, or a combination. However, PT Kencana Energi Lestari Tbk's current debt-to-equity ratio (DER) significantly deviates from the industry average, mostly due to its capital structure's substantial debt. Hence, the research aims to determine the company's optimal capital structure and find the best financing strategy to fund PT Kencana Energi Lestari Tbk's renewable energy development plan.

## B. RESEARCH METHOD

As depicted in Figure 1, the research design is presented in this study to tackle the highlighted problem adequately. The research design comprises the entirety of the research process, beginning with the problem

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identification and concluding with the formulation of recommendations. The data collection step in the research process involves the acquisition of secondary data by the author. This data encompasses several variables, such as the risk-free rate, market risk premium, historical stock prices, and other data extracted from the company's annual report. Subsequently, the gathered data is subjected to analysis in order to address the research questions. The author plans to utilize a uniform approach in assessing the current and optimal capital structure. This will involve the utilization of the Damodaran Cost of Debt Model to estimate the cost of debt, the Capital Asset Pricing Model (CAPM) to estimate the cost of equity, and the Weighted Average Cost of Capital (WACC) to estimate the overall cost of capital. For the optimal capital structure calculation, the author will first execute a 10% margin simulation to find the cost of debt and the cost of equity associated with each level. The cost of capital estimation for each level can be determined using WACC. Subsequently, the optimal range of debt-equity ratios, which yields the minimum cost of capital, will be used in the second calculation, employing a 1% margin. The computation procedure will be identical to the 10% margin simulation.

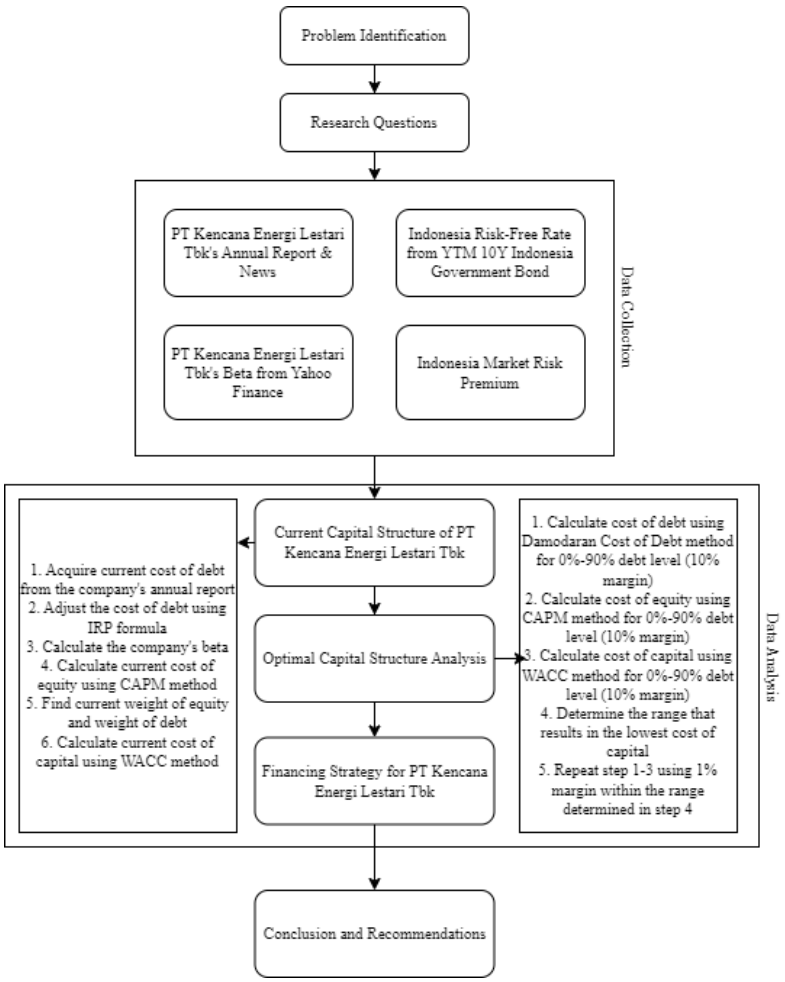


**Figure 1. Research Design**

## C. RESULTS AND DISCUSSION

It is required to make several assumptions as the foundation for the computation process. As indicated in Table 1, these variables include the country's risk-free rate, market risk premium, KEEN's tax rate, and beta:

**Table 1. Key Assumptions**

| No. | Variable | Value | Description |
|---|---|---|---|
| 1 | Risk-free Rate | 6.92% | Acquired from the yield-to-maturity rate of 10-year Indonesia government bonds |
| 2 | Market Risk Premium | 9.23% | Acquired from Damodaran Indonesia's Equity Risk Premium January 1, 2023 |

| No. | Variable | Value | Description |
|---|---|---|---|
| 3 | Tax Rate | 22% | Indonesia corporate tax rate of PT Kencana Energi Lestari Tbk in 2022 |
| 4 | Beta of KEEN | 1.02 | Acquired from the linear regression of 4 years (2019 - 2022) monthly between JKSE and KEEN |

Source: Processed Data, 2023

*Current Capital Structure of PT Kencana Energi Lestari Tbk*

It is necessary to identify the company's current capital structure to calculate its current cost of capital. The current ratios of debt and equity, as well as the associated costs, are included in this structure. Ultimately, this cost of capital will then be compared to the optimal cost of capital of the company.

*Current Cost of Debt*

As mentioned in the preceding chapter, the company's current cost of debt can be obtained from PT Kencana Energi Lestari Tbk's Annual Report for the year 2022, resulting in a rate of 6%. Nevertheless, to convert this particular value into Indonesian currency (IDR), it is imperative to make the necessary adjustments to the cost of debt by employing the Interest Rate Parity (IRP) principle. The variable $R_{HC}$ The equation denotes the borrowing interest rate denominated in the currency of the company, specifically the United States Dollar (USD) in this particular scenario. The determination of the $R_{FC}$, which represents the adjusted interest rate from USD to IDR, can be achieved by employing the following modified formula as intended by the author:

$$R_{FC} = \frac{F_1}{S_0} x\ (1 + R_{HC}) - 1$$

Where:

$F_1$ = Forward Exchange Rates

$S_0$ = Spot Exchange Rates

$R_{FC}$ = Cost of Debt in IDR

$R_{HC}$ = Cost of Debt in USD

The determination of the spot exchange rate for the computation will rely on the average exchange rate observed between the United States Dollar (USD) and the Indonesian Rupiah (IDR) during 2021, where USD 1 is equivalent to Rp 14,308.2785. The forward exchange rate will be computed based on the average exchange rate of USD to IDR in 2022, which is USD 1 = Rp 14,848.8212. The calculation can be seen below:

$$R_{FC} = \frac{14{,}848.8212}{14{,}308.2785} x\ (1 + 6\%) - 1$$

$$R_{FC} = 10.01\%$$

Based on the computation above, it can be seen that the current cost of debt (rd) for the company stands at 10.01%. After obtaining the current cost of debt, the after-tax cost of debt is calculated. Calculating the after-tax cost of debt involves multiplying the current cost of debt by (1 - Tax Rate). Based on the relevant governmental law about the renewable energy sector, it is determined that the company is liable to a corporation tax rate of 22% for the fiscal year 2022. Consequently, the after-tax cost of debt can be calculated as follows:

$$After\ Tax\ Cost\ of Debt = \ rd\ x\ (1 - T)$$

$$After\ Tax\ Cost\ of\ Debt = 10.01\%\ x\ (1 - 22\%)$$

$$After\ Tax\ Cost\ of\ Debt\ = 7.8\%$$

*Current Cost of Equity*

As stated in the preceding chapter, the company's current cost of equity will be determined using the Capital Asset Pricing Model (CAPM) approach. The formula comprises three key components: the risk-free rate, the market risk premium, and the company's beta. The risk-free rate is determined by calculating the yield-to-maturity rate of Indonesian government bonds over ten years, resulting in a value of 6.92%. The market risk premium is derived from the equity risk premium of Indonesia on January 1, 2023, resulting in a value of 9.23%. The company's beta coefficient is derived by evaluating the slope of

the linear regression model applied to the stock return of the Jakarta Stock Exchange (JKSE) and KEEN within the time spanning from 2019 to 2022, yielding a beta value of 1.02. Therefore, the current cost of equity can be calculated as follows:

$$Cost\ of\ Equity\ (re)\ = Rf + \beta levered\ x\ [E(Rm) - Rf]$$
$$re = 6.92\% + 1.02\ x\ 9.23\%$$
$$re = 16.35\%$$

*Current Weight of Debt*

When determining the cost of capital, it is customary to consider interest-bearing long-term debt exclusively since it constitutes the more reliable component of the firm's capital structure (Brealey et al., 2009). The observed company possesses two forms of interest-bearing long-term debt, specifically bank loans, and loans from financial institutions, which are not publicly traded. Hence, when the debt is not publicly traded, its market value is equivalent to its book value, thereby permitting the utilization of book value (Geddes, 2017). The weight of debt is determined by dividing the total amount of interest-bearing long-term debt of the company by its total capital, as illustrated below:

$$Weight\ of\ Debt\ (Wd) = \frac{Total\ Debt}{Total\ Debt\ +\ Total\ Equity} x\ 100\%$$
$$Wd\ = \frac{79{,}031{,}185}{181{,}878{,}698.65}\ x\ 100\%$$
$$Wd\ = 43.45\%$$

*Current Weight of Equity*

Determining the market value of equity involves multiplying the stock price of PT Kencana Energi Lestari Tbk on December 31, 2022, by the corresponding number of shares outstanding during the same period. The market capitalization denotes the market value of a company's equity, and the weight of equity is determined by dividing the market value of a company's equity by its entire capital, as shown below:

$$Weight\ of\ Equity\ (We) = \frac{Total\ Equity}{Total\ Debt\ +\ Total\ Equity} x\ 100\%$$
$$We = \frac{102{,}847{,}514}{181{,}878{,}698.65}\ x\ 100\%$$
$$We\ =\ 56.55\%$$

*Current Cost of Capital*

The WACC method is employed to ascertain the current cost of capital by considering the previously calculated variables. Therefore, the current cost of capital of the company is:

$$WACC\ =\ \Big(Wd\ x\ \big(rd\ x\ (1-T)\big)\Big) +\ (We\ x\ re) +\ (Wp\ x\ rp)$$
$$WACC = \Big(43.45\%\ x\ \big(10.01\%\ x\ (1-22\%)\big)\Big) + (56.55\%\ x\ 16.35\%) + 0$$
$$WACC = 12.64\%$$

*Optimal Capital Structure of PT Kencana Energi Lestari Tbk*

The determination of the optimal capital structure will rely on the utilization of the same assumptions that were employed in the computation of the current capital structure. In order to determine the optimal capital structure, a simulation will be undertaken, encompassing a range of debt and equity proportions spanning from 0% to 90%. A margin of 10% shall be incorporated in the first computation. Subsequently, the two nearest capital costs with the smallest values will be chosen for the subsequent calculation. The margin will be reduced to 1% to attain a more accurate result of the optimal debt-equity ratios.

*Cost of Debt*

The total debt for each debt level is determined by multiplying the respective debt level by the total capital. In order to ascertain the default spread, it is necessary to compute the Interest Coverage Ratio (ICR). In the hypothetical situation, when the debt level is at 0%, meaning no debt accrues interest, the

interest expenditure is effectively nil. This leads to attaining the highest synthetic grade (AAA) and a minimal default spread of 0.69%. Then, the cost of debt can be calculated by adding the risk-free rate to this value. The actual interest expense for each debt level is unknown; therefore, the pre-tax cost of debt from the 0% debt level estimates the interest expense for subsequent levels (Damodaran, 2015). The calculation of interest expense involves multiplying the pre-tax cost of debt by the total debt at the subsequent level. Subsequently, the ICR is derived by dividing the Earnings Before Interest and Taxes (EBIT) by the amount of interest expense. Determining the default spread linked to each level of debt is based on referencing the Damodaran Synthetic Rating Table associated with the company. Multiple iterations are required in order to obtain the precise default spread. In addition, akin to the preceding computation, the risk-free rate is combined with the default spread to get the cost of debt for each level of debt. Ultimately, by factoring in the impact of taxes by multiplying the value by (1 – Tax Rate), it becomes possible to ascertain the after-tax cost of debt for each amount. In addition, it is important to note that if the amount of debt increases to a level where interest expense exceeds the EBIT, it becomes imperative to modify the tax rate to accommodate the potential tax advantage reduction (Damodaran, 2015). Hence, the company's maximum tax benefit is illustrated below:

$$Maximum\ Tax\ Benefit = EBIT\ x\ Marginal\ Tax\ Rate$$
$$Maximum\ Tax\ Benefit = 22\%\ x\ 23{,}952{,}767$$
$$Maximum\ Tax\ Benefit = 5{,}269{,}608.74$$

After calculating the maximum tax benefit, the adjusted marginal tax rate for each debt level can then be calculated using the formula below:

$$Adjusted\ Marginal\ Tax\ Rate = \frac{Maximum\ Tax\ Benefit}{Interest\ Expense}$$

The detailed calculation of the cost of debt simulation can be seen below:

**Table 2. Cost of Debt Calculation**

| Debt Level | Total Debt (in USD) | Interest Expense (in USD) | Interest Coverage Ratio | Rating | Default Spread | Risk-free Rate | Pre-tax Cost of Debt | Tax Rate | After-tax Cost of Debt |
|---|---|---|---|---|---|---|---|---|---|
| 0% | - | - | ∞ | AAA | 0.69% | 6.92% | 7.61% | 22% | 5.94% |
| 10% | 18,187,869.87 | 1,384,096.90 | 17.31 | AAA | 0.69% | 6.92% | 7.61% | 22% | 5.94% |
| 20% | 36,375,739.73 | 2,964,622.79 | 8.08 | A+ | 1.23% | 6.92% | 8.15% | 22% | 6.36% |
| 30% | 54,563,609.60 | 4,659,732.26 | 5.14 | A- | 1.62% | 6.92% | 8.54% | 22% | 6.66% |
| 40% | 72,751,479.46 | 6,794,988.18 | 3.53 | BB+ | 2.42% | 6.92% | 9.34% | 22% | 7.29% |
| 50% | 90,939,349.33 | 11,076,412.75 | 2.16 | B | 5.26% | 6.92% | 12.18% | 22% | 9.50% |
| 60% | 109,127,219.19 | 15,594,279.62 | 1.54 | B- | 7.37% | 6.92% | 14.29% | 22% | 11.15% |
| 70% | 127,315,089.06 | 28,900,525.22 | 0.83 | CC | 15.78% | 6.92% | 22.70% | 18% | 18.56% |
| 80% | 145,502,958.92 | 35,531,822.57 | 0.67 | C | 17.50% | 6.92% | 24.42% | 15% | 20.80% |
| 90% | 163,690,828.79 | 39,973,300.39 | 0.60 | C | 17.50% | 6.92% | 24.42% | 13% | 21.20% |

Source: Processed Data, 2023

*Cost of Equity*

The CAPM method and the same assumptions (tax rate of 22%, risk-free rate of 6.92%, market risk premium of 9.23%, and company's beta of 1.02) will be used to calculate the cost of equity for each level. However, to find the re-levered beta for each debt level, it is necessary to calculate the unlevered beta using the previously calculated levered beta (Equation 9):

In order to determine the cost of equity for each level, the CAPM will be employed, along with the following assumptions: a tax rate of 22%, a risk-free rate of 6.92%, a market risk premium of 9.23%, and a company beta of 1.02. In order to determine the re-levered beta for each amount of debt, it is imperative to compute the unlevered beta by utilizing the levered beta previously obtained:

$$Unlevered\ Beta\ (\beta u) = \beta l\ x\ [1 + ((1 - tax\ rate)\ x\ \frac{Debt}{Equity})]$$
$$\beta u\ =\ 1.02\ x\ [1 + ((1 - 22\%)\ x\ \frac{79{,}031{,}185}{102{,}847{,}514})]$$
$$\beta u\ =\ 0.64$$

The unlevered beta can then be used to determine the re-levered beta for each debt-equity level, and after that, the cost of equity can be calculated:

$$Levered\ Beta\ (\beta l) = \beta u\ x\ [1 + ((1 - tax\ rate)\ x\ \frac{Debt}{Equity})]$$

$$Cost\ of\ Equity\ (re)\ = Rf + \beta levered\ x\ [E(Rm) - Rf]$$

**Table 3. Cost of Equity Calculation**

| Debt Level | Equity Level | DER | Tax | Unlevered Beta | Levered Beta | Cost of Equity |
|---|---|---|---|---|---|---|
| 0% | 100% | 0% | 22% | 0.64 | 0.64 | 12.82% |
| 10% | 90% | 11% | 22% | 0.64 | 0.69 | 13.33% |
| 20% | 80% | 25% | 22% | 0.64 | 0.76 | 13.97% |
| 30% | 70% | 43% | 22% | 0.64 | 0.85 | 14.79% |
| 40% | 60% | 67% | 22% | 0.64 | 0.97 | 15.88% |
| 50% | 50% | 100% | 22% | 0.64 | 1.14 | 17.41% |
| 60% | 40% | 150% | 22% | 0.64 | 1.39 | 19.71% |
| 70% | 30% | 233% | 22% | 0.64 | 1.80 | 23.55% |
| 80% | 20% | 400% | 22% | 0.64 | 2.63 | 31.21% |
| 90% | 10% | 900% | 22% | 0.64 | 5.12 | 54.20% |

Source: Processed Data, 2023

*Optimal Capital Structure*

The cost of capital can be estimated using the WACC approach, as seen in the following table:

**Table 4. Cost of Capital Calculation**

| Debt Level | Equity Level | DER | Pre-tax Cost of Debt | After-tax Cost of Debt | Cost of Equity | Cost of Capital |
|---|---|---|---|---|---|---|
| 0% | 100% | 0% | 7.61% | 5.94% | 12.82% | 12.8158% |
| 10% | 90% | 11% | 7.61% | 5.94% | 13.33% | 12.5877% |
| 20% | 80% | 25% | 8.15% | 6.36% | 13.97% | 12.4438% |
| **30%** | **70%** | **43%** | **8.54%** | **6.66%** | **14.79%** | **12.3490%** |
| 40% | 60% | 67% | 9.34% | 7.29% | 15.88% | 12.4430% |
| 50% | 50% | 100% | 12.18% | 9.50% | 17.41% | 13.4574% |
| 60% | 40% | 150% | 14.29% | 11.15% | 19.71% | 14.5733% |
| 70% | 30% | 233% | 22.70% | 18.56% | 23.55% | 20.0565% |
| 80% | 20% | 400% | 24.42% | 20.80% | 31.21% | 22.8808% |
| 90% | 10% | 900% | 24.42% | 21.20% | 54.20% | 24.5011% |

Source: Processed Data, 2023

Based on the data presented in the table, it is evident that the optimal cost of capital is achieved when the debt proportion falls within the range of 20% - 40%. Consequently, the subsequent calculations will be conducted within this specified range. Furthermore, following the trade-off principle, it is evident that the company will derive advantages from debt only up to a specific level of indebtedness.

*Cost of Debt (1% Margin)*

The calculation of the cost of debt for the 1% margin will use the same method as the previous section, as can be seen below:

**Table 5. Cost of Debt Calculation (1% margin)**

| Debt Level | Total Debt (in USD) | Interest Expense (in USD) | Interest Coverage Ratio | Rating | Default Spread | Risk-free Rate | Pre-tax Cost of Debt | Tax Rate | After-tax Cost of Debt |
|---|---|---|---|---|---|---|---|---|---|
| 20% | 36,375,739.73 | 2,964,622.79 | 8.08 | A+ | 1.23% | 6.92% | 8.15% | 22% | 6.36% |
| 21% | 38,194,526.72 | 3,112,853.93 | 7.69 | A+ | 1.23% | 6.92% | 8.15% | 22% | 6.36% |
| 22% | 40,013,313.70 | 3,337,110.36 | 7.18 | A | 1.42% | 6.92% | 8.34% | 22% | 6.51% |
| 23% | 41,832,100.69 | 3,488,797.20 | 6.87 | A | 1.42% | 6.92% | 8.34% | 22% | 6.51% |
| 24% | 43,650,887.68 | 3,640,484.03 | 6.58 | A | 1.42% | 6.92% | 8.34% | 22% | 6.51% |
| 25% | 45,469,674.66 | 3,792,170.87 | 6.32 | A | 1.42% | 6.92% | 8.34% | 22% | 6.51% |
| 26% | 47,288,461.65 | 3,943,857.70 | 6.07 | A | 1.42% | 6.92% | 8.34% | 22% | 6.51% |
| 27% | 49,107,248.64 | 4,193,759.03 | 5.71 | A- | 1.62% | 6.92% | 8.54% | 22% | 6.66% |
| 28% | 50,926,035.62 | 4,349,083.44 | 5.51 | A- | 1.62% | 6.92% | 8.54% | 22% | 6.66% |

| Debt Level | Total Debt (in USD) | Interest Expense (in USD) | Interest Coverage Ratio | Rating | Default Spread | Risk-free Rate | Pre-tax Cost of Debt | Tax Rate | After-tax Cost of Debt |
|---|---|---|---|---|---|---|---|---|---|
| 29% | 52,744,822.61 | 4,504,407.85 | 5.32 | A- | 1.62% | 6.92% | 8.54% | 22% | 6.66% |
| 30% | 54,563,609.60 | 4,659,732.26 | 5.14 | A- | 1.62% | 6.92% | 8.54% | 22% | 6.66% |
| 31% | 56,382,396.58 | 4,815,056.67 | 4.97 | A- | 1.62% | 6.92% | 8.54% | 22% | 6.66% |
| 32% | 58,201,183.57 | 4,970,381.08 | 4.82 | A- | 1.62% | 6.92% | 8.54% | 22% | 6.66% |
| 33% | 60,019,970.55 | 5,125,705.49 | 4.67 | A- | 1.62% | 6.92% | 8.54% | 22% | 6.66% |
| 34% | 61,838,757.54 | 5,281,029.89 | 4.54 | A- | 1.62% | 6.92% | 8.54% | 22% | 6.66% |
| 35% | 63,657,544.53 | 5,678,252.97 | 4.22 | BBB | 2.00% | 6.92% | 8.92% | 22% | 6.96% |
| 36% | 65,476,331.51 | 5,840,488.77 | 4.10 | BBB | 2.00% | 6.92% | 8.92% | 22% | 6.96% |
| 37% | 67,295,118.50 | 6,285,364.07 | 3.81 | BB+ | 2.42% | 6.92% | 9.34% | 22% | 7.29% |
| 38% | 69,113,905.49 | 6,455,238.77 | 3.71 | BB+ | 2.42% | 6.92% | 9.34% | 22% | 7.29% |
| 39% | 70,932,692.47 | 6,625,113.48 | 3.62 | BB+ | 2.42% | 6.92% | 9.34% | 22% | 7.29% |
| 40% | 72,751,479.46 | 6,794,988.18 | 3.53 | BB+ | 2.42% | 6.92% | 9.34% | 22% | 7.29% |

Source: Processed Data, 2023

*Cost of Equity (1% Margin)*

The calculation of the cost of equity for the 1% margin uses the same method as the previous section, as can be seen below:

**Table 6. Cost of Equity Calculation (1% margin)**

| Debt Level | Equity Level | DER | Tax | Unlevered Beta | Levered Beta | Cost of Equity |
|---|---|---|---|---|---|---|
| 20% | 80% | 25% | 22% | 0.64 | 0.76 | 13.97% |
| 21% | 79% | 27% | 22% | 0.64 | 0.77 | 14.04% |
| 22% | 78% | 28% | 22% | 0.64 | 0.78 | 14.11% |
| 23% | 77% | 30% | 22% | 0.64 | 0.79 | 14.19% |
| 24% | 76% | 32% | 22% | 0.64 | 0.80 | 14.27% |
| 25% | 75% | 33% | 22% | 0.64 | 0.80 | 14.35% |
| 26% | 74% | 35% | 22% | 0.64 | 0.81 | 14.43% |
| 27% | 73% | 37% | 22% | 0.64 | 0.82 | 14.52% |
| 28% | 72% | 39% | 22% | 0.64 | 0.83 | 14.60% |
| 29% | 71% | 41% | 22% | 0.64 | 0.84 | 14.69% |
| 30% | 70% | 43% | 22% | 0.64 | 0.85 | 14.79% |
| 31% | 69% | 45% | 22% | 0.64 | 0.86 | 14.88% |
| 32% | 68% | 47% | 22% | 0.64 | 0.87 | 14.98% |
| 33% | 67% | 49% | 22% | 0.64 | 0.88 | 15.08% |
| 34% | 66% | 52% | 22% | 0.64 | 0.90 | 15.18% |
| 35% | 65% | 54% | 22% | 0.64 | 0.91 | 15.29% |
| 36% | 64% | 56% | 22% | 0.64 | 0.92 | 15.40% |
| 37% | 63% | 59% | 22% | 0.64 | 0.93 | 15.52% |
| 38% | 62% | 61% | 22% | 0.64 | 0.94 | 15.63% |
| 39% | 61% | 64% | 22% | 0.64 | 0.96 | 15.76% |
| 40% | 60% | 67% | 22% | 0.64 | 0.97 | 15.88% |

Source: Processed Data, 2023

*Optimal Capital Structure (1% Margin)*

After determining the value of cost of debt and equity, the cost of capital can be calculated using the WACC approach. The calculation of the cost of capital can be seen in the table below:

**Table 7. Cost of Capital Calculation (1% margin)**

| Debt Level | Equity Level | DER | Pre-tax Cost of Debt | After-tax Cost of Debt | Cost of Equity | Cost of Capital |
|---|---|---|---|---|---|---|
| 20% | 80% | 25% | 8.15% | 6.36% | 13.97% | 12.4438% |
| 21% | 79% | 27% | 8.15% | 6.36% | 14.04% | 12.4252% |
| 22% | 78% | 28% | 8.34% | 6.51% | 14.11% | 12.4392% |
| 23% | 77% | 30% | 8.34% | 6.51% | 14.19% | 12.4220% |
| 24% | 76% | 32% | 8.34% | 6.51% | 14.27% | 12.4049% |
| 25% | 75% | 33% | 8.34% | 6.51% | 14.35% | 12.3878% |
| 26% | 74% | 35% | 8.34% | 6.51% | 14.43% | 12.3707% |

| Debt Level | Equity Level | DER | Pre-tax Cost of Debt | After-tax Cost of Debt | Cost of Equity | Cost of Capital |
|---|---|---|---|---|---|---|
| 27% | 73% | 37% | 8.54% | 6.66% | 14.52% | 12.3957% |
| 28% | 72% | 39% | 8.54% | 6.66% | 14.60% | 12.3801% |
| 29% | 71% | 41% | 8.54% | 6.66% | 14.69% | 12.3646% |
| 30% | 70% | 43% | 8.54% | 6.66% | 14.79% | 12.3490% |
| 31% | 69% | 45% | 8.54% | 6.66% | 14.88% | 12.3335% |
| 32% | 68% | 47% | 8.54% | 6.66% | 14.98% | 12.3179% |
| 33% | 67% | 49% | 8.54% | 6.66% | 15.08% | 12.3023% |
| 34% | 66% | 52% | 8.54% | 6.66% | 15.18% | 12.2868% |
| 35% | 65% | 54% | 8.92% | 6.96% | 15.29% | 12.3750% |
| 36% | 64% | 56% | 8.92% | 6.96% | 15.40% | 12.3624% |
| 37% | 63% | 59% | 9.34% | 7.29% | 15.52% | 12.4710% |
| 38% | 62% | 61% | 9.34% | 7.29% | 15.63% | 12.4617% |
| 39% | 61% | 64% | 9.34% | 7.29% | 15.76% | 12.4523% |
| 40% | 60% | 67% | 9.34% | 7.29% | 15.88% | 12.4430% |

Source: Processed Data, 2023

The findings indicate that PT Kencana Energi Lestari Tbk achieves its optimal capital structure when the proportion of debt is 34%, and equity is 66%, accompanied by a cost of capital of 12.2868%. The obtained outcome indicates a disparity of 0.3495% between the current and optimal costs of capital. According to the findings shown in the table above, it is evident that the cost of capital experiences fluctuations in response to variations in the cost of debt. This phenomenon arises due to the disparity between the fluctuations in the cost of debt and equity within the context of the 1% margin calculation. Additionally, while conducting the necessary computations, it becomes apparent that utilizing the optimal mix of debt and equity will decrease the company's debt-to-equity ratio from 76.84% to 51.52%. This adjustment results in a convergence of the ratio towards the industry's mean debt-to-equity ratio of 35.64%.

*Financing Plan for PT Kencana Energi Lestari Tbk's Project*

PT Kencana Energi Lestari Tbk's current capital structure consists of 43.45% debt and 56.55% equity, resulting in a cost of capital of 12.64%. However, after evaluating the optimal capital structure, it is determined that the company can maximize its value by adopting a capital structure of 34% debt and 66% equity, as this proportion results in the lowest cost of capital, which is 12.29%. Furthermore, the company still requires external financing of USD 121 million to fund its renewable energy development projects in 2023. Adding the additional funds needed to the total capital will result in a value of USD 302,878,698.65. To determine the optimal amount of debt and equity for the company, the optimal weight of debt (34%) and equity (66%) is multiplied by the total capital.

The existing capital structure of PT Kencana Energi Lestari Tbk comprises 43.45% debt and 56.55% equity, leading to a cost of capital of 12.64%. Upon assessing the most optimal capital structure, it has been ascertained that the company can maximize its value by implementing a capital structure consisting of 34% debt and 66% equity, as this particular proportion yields the lowest cost of capital, amounting to 12.29%. In addition, it should be noted that the company still needs external capital of USD 121 million to support its renewable energy growth initiatives in the year 2023. Adding the additional funds required to the overall capital will yield a sum of USD 302,878,698.65. In order to determine the optimal proportion of debt and equity for the company, the total capital is multiplied by the optimal weight of debt (34%) and equity (66%). The calculation is presented in the table provided below:

**Table 8. Future Optimal Capital Structure**

| Variable | Value (in USD) |
|---|---|
| Total Capital (After Added Capital) | 302,878,698.65 |
| Optimal Weight of Debt | 34% |
| Optimal Weight of Equity | 66% |
| Total Debt | 102,978,757.54 |
| Total Equity | 199,899,941.11 |

Source: Processed Data, 2023

It can be seen that the optimal amount of debt is USD 102,978,757.54, while the optimal amount of equity is USD 199,899,941.11. Initially, the company's financing plan included the addition of external

financing amounting to USD 121,000,000. Therefore, it can be determined that the company needs to issue long-term debt of USD 23,947,572.54 and obtain the rest of the required funds by issuing equity capital amounting to USD 97,052,427.46.

## D. CONCLUSION

PT Kencana Energi Lestari Tbk presently maintains a capital structure comprising 43.45% debt and 56.55% equity, yielding a cost of capital amounting to 12.64%. The company responded favorably to Peraturan Presiden Nomor 112 Tahun 2022 of the Indonesian Government. This regulation is designed to expedite the progress of renewable energy for electricity generation. In response to the above situation, the company designated USD 30 million as a capital expenditure in 2023. This allocation is intended to finance a range of renewable energy initiatives. These projects encompass a 10 MW micro-hydro power plant (PLTM), a 5 MW biomass acquisition project, and the development of a 1.3 MW solar photovoltaic project. Furthermore, the company has strategically planned a renewable energy initiative in the Philippines, with a projected investment of USD 100 million. In order to fund these initiatives, the company plans to allocate $9 million from its internal cash reserves and secure the remaining $121 million through external financing options, such as debt, equity, or a combination of both.

Based on the calculations performed in the preceding chapter, it has been ascertained that the optimal capital structure for the company comprises 34% debt and 66% equity. Based on these proportions, it can be determined that the company's optimal cost of capital is 12.29%. The company's debt-to-equity ratio exhibits a substantial deviation from the industry mean. This discrepancy comes from the company's comparatively elevated dependence on debt from other companies within the same industry. The previous claim is reinforced by the computation of the optimal capital structure in Chapter IV, which demonstrates that the organization can attain the most optimal cost of capital by lowering its debt proportion and increasing the equity within its capital structure. Hence, drawing upon the calculations conducted in the preceding section, the company should get the necessary capital of USD 102,978,757.54 through debt financing while procuring the remaining essential funds of USD 199,899,941.11 through equity financing. Furthermore, the optimal capital structure recommendation presented in this paper is not static and is subject to potential changes as PT Kencana Energi Lestari Tbk's financial position, growth prospects, and risk profile evolve. Therefore, it is advisable for the company to regularly review and reassess its capital structure in order to align it with its financial objectives and prevailing market conditions.

## REFERENCES

Adaro. (2023). Adaro. Retrieved August 11, 2023, from https://www.adaro.com/pages/read/10/42/Annual%20Report

asiatoday. (2022, 9). Investasi Rp1,48 Triliun, Kencana Energi (KEEN) Indonesia Ekspansi di Filipina. Asia Today. Retrieved August 11, 2023, from https://asiatoday.id/read/investasi-rp148-triliun-kencana-energi-keen-indonesia-ekspansi-di-filipin

Berk, J. B., & DeMarzo, P. (2004). Corporate Finance (Global Ed ed.). Boston ; Pearson.

Bhwana, P. G. (2023, 07 13). Sri Mulyani Calls Indonesia's 0.5% Renewable Energy Use 'Embarrassing'. tempo.co. Retrieved August 12, 2023, from https://en.tempo.co/read/1747447/sri-mulyani-calls-indonesias-0-5-renewable-energy-use-embarrassing?tracking_page_direct

Britama.com. (2019, September 2). Sejarah dan Profil Singkat KEEN (Kencana Energi Lestari Tbk). britama.com. Retrieved August 11, 2023, from https://britama.com/index.php/2019/09/sejarah-dan-profil-singkat-keen/

Damodaran, A. (2015). Applied Corporate Finance (5th Ed ed.). Stern School of Business.

Darmawan, A. D. (2022, December 31). Nilai Tukar Rupiah Melemah ke Level 15.567,5 per Dolar AS (Sabtu, 31 Desember 2022). Databoks. Retrieved August 11, 2023, from https://databoks.katadata.co.id/datapublish/2022/12/31/nilai-tukar-rupiah-melemah-ke-level-155675-per-dolar-as-sabtu-31-desember-2022

EBTKE. (2022, October 24). Direktorat Jenderal EBTKE - Kementerian ESDM. Direktorat Jenderal EBTKE - Kementerian ESDM. Retrieved August 11, 2023, from https://ebtke.esdm.go.id/post/2022/10/24/3302/indonesia.energy.transition.outlook

EESI. (2023). Fossil Fuels | Topics | EESI. Environmental and Energy Study Institute. Retrieved August 11, 2023, from https://www.eesi.org/topics/fossil-fuels

Enerdata. (n.d.). Fossil Fuels Primary Consumption Projections | 2050 Fossil Fuels Forecasts | Enerdata. Forecasting World Energy. Retrieved August 11, 2023, from https://eneroutlook.enerdata.net/projection-fossil-primary-consumption.html

Forbes. (2023, 1 18). Renewable Energy Is Growing Quickly Worldwide - Here Are The Industry Trends Investors Pay Attention To. Forbes. Retrieved August 11, 2023, from https://www.forbes.com/sites/qai/2023/01/18/renewable-energy-is-growing-quickly-worldwidehere-are-the-industry-trends-investors-pay-attention-to/?sh=844d15f4e649

Geodipa. (2023). Laporan Tahunan. Geo Dipa Energi. Retrieved August 11, 2023, from https://www.geodipa.co.id/hubungan-investor/laporan-tahunan/

Gitman, L. J., & Zutter, C. J. (2014). Principle of Managerial Finance. Pearson.

Graham, J. R., & Harvey, C. R. (2001). The theory and practice of corporate finance: evidence from the field. (Vol. 60). Journal of Financial Economics.

IEA. (2022). Renewables 2022 – Analysis - IEA. International Energy Agency. Retrieved August 11, 2023, from https://www.iea.org/reports/renewables-2022

IEA. (2023). Executive summary – Enhancing Indonesia's Power System – Analysis - IEA. International Energy Agency. Retrieved August 11, 2023, from https://www.iea.org/reports/enhancing-indonesias-power-system/executive-summary

IEA. (2023). Global Energy Crisis – Topics - IEA. International Energy Agency. Retrieved August 11, 2023, from https://www.iea.org/topics/global-energy-crisis

IESR. (2022, December 14). energy crisis – IESR. IESR. Retrieved August 11, 2023, from https://iesr.or.id/en/tag/energy-crisis

Indika Energy. (n.d.). Annual Report Archive. Indika Energy. Retrieved August 11, 2023, from https://www.indikaenergy.co.id/investors/investor-annual-report/

IRENA. (2023, March 21). Record Growth in Renewables Achieved Despite Energy Crisis. IRENA. Retrieved August 11, 2023, from https://www.irena.org/News/pressreleases/2023/Mar/Record-9-point-6-Percentage-Growth-in-Renewables-Achieved-Despite-Energy-Crisis

IRENA. (2023, March 21). Renewable capacity statistics 2023. IRENA. Retrieved August 11, 2023, from https://www.irena.org/Publications/2023/Mar/Renewable-capacity-statistics-2023

Jdky. (2022). Annual Report – SKY Energy Indonesia. SKY Energy Indonesia. Retrieved August 11, 2023, from https://www.sky-energy.co.id/annual-report/

KEEN. (2023). Annual Report. Kencana Energy. Retrieved August 11, 2023, from https://www.kencanaenergy.com/investor/annual_report

KEEN. (2023). Kencana Energy. Kencana Energy. Retrieved August 11, 2023, from https://www.kencanaenergy.com

Mahiddin, F., & Hexagraha, S. A. A. (2023). Indonesia: Indonesia Renewable Energy Update: Indonesia's National Energy Policy And Fostering Renewable Energy Development. Mondaq. Retrieved August 12, 2023, from https://www.mondaq.com/renewables/1270476/indonesia-renewable-energy-update-indonesias-national-energy-policy-and-fostering-renewable-energy-developmen

marketriskpremia. (2023). ID. Market Risk Premia. Retrieved August 11, 2023, from http://www.market-risk-premia.com/id.html

Mckinsey. (2022, April 26). Global Energy Perspective 2022. McKinsey. Retrieved August 11, 2023, from https://www.mckinsey.com/industries/oil-and-gas/our-insights/global-energy-perspective-2022

Medina, A. F. (2023, May 19). A Guide to Corporate Income Tax in Indonesia. ASEAN Briefing. Retrieved August 11, 2023, from https://www.aseanbriefing.com/news/a-guide-to-corporate-income-tax-in-indonesia/

Mordor Intelligence. (n.d.). Indonesia Renewable Energy Market Size & Share Analysis - Industry Research Report - Growth Trends. Mordor Intelligence. Retrieved August 12, 2023, from https://www.mordorintelligence.com/industry-reports/indonesia-renewable-energy-market

Pannett, R. (2022, December 12). Renewables to overtake coal as world's top energy source by 2025, IEA says. Washington Post. Retrieved August 12, 2023, from https://www.washingtonpost.com/world/2022/12/12/renewables-coal-energy-crisis-iea-2022/

Pertamina Geothermal. (2023). Annual Report. Pertamina Geothermal Energy. Retrieved August 12, 2023, from https://www.pge.pertamina.com/en/report

Prakoso, J. B. (2022, September 8). Bisnis Indonesia Kencana Energi Mau Ekspansi EBT di Filipina Rp1,48 Triliun. BisnisIndonesia.id. Retrieved August 11, 2023, from https://bisnisindonesia.id/article/kencana-energi-mau-ekspansi-ebt-di-filipina-rp148-triliun

Ross, S. A., Westerfield, R. W., & Jordan, B. D. (2019). Fundamental of Corporate Finance (12th Ed ed.). McGraw-Hill Education.

Super Energy. (2023). RUPS. Super Energi - RUPS. Retrieved August 12, 2023, from https://www.superenergy.co.id/investor/2

Tachev, V. (2022, May 12). The Growth of Renewable Energy in Indonesia 2022 – Current State, Opportunities and Challenges. Energy Tracker Asia. Retrieved August 11, 2023, from https://energytracker.asia/renewable-energy-in-indonesia/

takeprofit.org. (2022). Indonesia Corporate Tax Rate 2023. Take-profit.org. Retrieved August 12, 2023, from https://take-profit.org/en/statistics/corporate-tax-rate/indonesia/

terragarra. (2023). Investor Relations: All Downloads - PT Terregra Asia Energy. PT Terregra Asia Energy - Investor Relations. Retrieved August 12, 2023, from https://investor.terregra.co.id/download.html

Timorria, L. F. (2022, September 18). Perpres EBT Terbit, Kencana Energi (KEEN) Lihat Peluang Cuan. Market. Retrieved August 11, 2023, from https://market.bisnis.com/read/20220918/192/1578604/perpres-ebt-terbit-kencana-energi-keen-lihat-peluang-cuan